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COVERING, COVERING ELEMENTS AND INSTALLING AND DISASSEMBLING METHOD

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The invention concerns a covering, in particular a floor, ceiling or wall covering, as well as elements to form such a covering.

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B. Summary of the Invention

Sub 2 The invention aims a covering which can be very easily applied and which preferably can also easily be disassembled.

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To this aim, the invention concerns a covering, in particular a floor, ceiling or wall covering, characterised in that it at least consists of a number of successive panels on the one hand, and of fixing means therefor on the other hand, which fixing means comprise holders which retain the panels in a disconnectable manner by means of fixing parts, over a part of the thickness of the panels. The term 'to hold' can hereby imply, depending on the aimed embodiment, to fix, to surround, to interlock, to enclose or to clamp.

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The covering preferably consists of panels, in particular laths, which are mounted in rows, whereby these panels can be removed, at least irrespective of the panels which are situated in the adjacent rows on either side. Thus is obtained that each row of panels can be freely removed, without being hindered by the panels situated next to it, so that a random part of the covering can be dismounted at any time, without damaging the rest of the covering. This part can be situated in the middle of the covering, and it

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is not necessary to disassemble the covering starting from the edge.

Use is preferably made of holders which are each provided with at least two fixing parts made in one piece with them, which can co-operate with two edges or portions of the panel respectively. These are preferably the opposite edges of one and the same panel, or portions situated near the edges. The use of such holders offers the advantage that the above-mentioned fixing parts per holder are each time situated at the same distance in relation to one another, as a result of which the co-operation with the edges or parts of the panels concerned is always guaranteed.

According to the invention, the holders preferably consist of separate elements, whereby each holder can mainly co-operate with a single panel or with a certain number of panels. As use is made of separate holders, they are easy to manipulate, and to manufacture as well, especially if they are designed to co-operate with only one panel respectively.

According to the most preferred embodiment, these separate holders are provided with a part forming a stop with which they can be positioned against an already installed part of the covering. Thus is obtained that the holders to be installed are easy to line up, simply by placing them with the stopping part against the edge of the already installed part of the covering.

The design of the holder is preferably such, on the side where the spacer is situated on the one hand, and on the opposite side thereof on the other hand, that when several such holders are mounted one after the other, the spacer of

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According to the most preferred embodiment, the holders are preferably equipped with a combination of one or more fixing parts on the one hand which are formed of elastically bendable lips which are bent backward out of the plane of the holder and then forward again to form a hook-shaped part, and of one or several fixing parts on the other hand which are equipped with a rather rigid hook-shaped part, whereby at least one of the fixing parts also has an inclined guiding part, such that a panel can be easily mounted by hooking it on one edge behind the fixing part concerned, and by subsequently forcing it over the guiding part in the second fixing part.

The panels preferably overlap near their edges, such that a closed covering is obtained. In particular, the panels preferably mesh near their edges, for example by means of a tongue and groove joint. This offers the advantage that the panels are coupled to one another over their full length, and cannot sag, bend respectively in relation to one another in certain places, and in particular in between the holders.

According to another preferred characteristic of the invention, the covering is characterised in that the panels, or possibly auxiliary elements working in conjunction with them, can mesh as such, but nevertheless can still be shifted laterally when mounted, against the spring force of the clamping parts, whereby the meshing is such that it is always possible to remove a single panel from between the adjacent panels by shifting it as mentioned above and by subsequently turning it down.

To this end, the holders are preferably equipped with fixing parts defining a seating for the panels which is positioned such that there is a lateral play between the

panels of the successive rows, which play allows for the above-mentioned lateral shifting.

5 The above-mentioned holders may possibly be equipped with means which ensure a tight grip when the holders are being applied on a base, even when the holders are only fixed to the base in single point, for example by means of one nail, screw or staple. Thus is avoided that the holders can hinge around this single point.

10 According to the invention, the holders can also be provided with positioning means which simplify a quick positioning in relation to the base. According to a practical embodiment, these positioning means will consist of supporting means, such as a supporting surface, with
15 which said holder can be forced laterally against the lath or such against which it is to be applied. Together with the bottom side of the holder, such a supporting surface then forms an L-shaped seating which allows for a smooth
20 positioning. Moreover, this supporting surface prevents the holder from turning in case it is only fixed in a single point.

25 The invention is particularly meant for a covering whereby the panels consist of laths, but naturally it can also be applied in case of larger panels, for example in the shape of rectangular plates.

30 Further, the invention is also meant in the first place for panels which are hardly or not elastically deformable as such on their edges, especially for panels with a full core, in particular for panels which are composed of a composite material on the basis of wood, such as MDF or HDF.

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Further, the invention also concerns a method for installing, disassembling such a covering respectively. The characteristics of this method, as well as other characteristics of the covering, will become clear from the following detailed description, as well as from the accompanying claims.

In order to better explain the characteristics of the invention, hereafter some preferred embodiments are described hereafter as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

1 Brief Description of the Drawings

figure 1 represents a cross-section of a part of a covering, in particular a ceiling covering, according to the invention;

figure 2 is an exploded view of the covering from figure 1;

figure 3 represents the covering from figure 1 when being mounted;

figure 4 represents a variant of a covering according to the invention;

figure 5 represents a holder from the covering of figure 4 in perspective;

figure 6 represents a view according to arrow F6 in figure 4 to a smaller scale;

figure 7 shows a view similar to that of figure 4, but for a variant;

figure 8 shows another holder according to the invention;

figure 9 shows another variant of the invention;

figure 10 shows a cross-section according to line X-X in figure 9, when assembled;

figures 11 and 12 show two more variants of the invention;

figures 13 to 15 show another variant for three different positions;

figures 16, 17 and 18 represent a variant of a holder according to the invention seen from aside, from above and in perspective respectively;

figure 19 represents the holder from figures 16 to 18 when assembled;

figure 20 represents a view according to arrow F20 in figure 19;

figure 21 represents a top view of another variant of the holder in figure 17;

figures 22 and 23 represent some more details regarding the covering according to the invention;

figures 24 to 26 represent another variant of the invention, such for different conditions;

figures 27 to 29 represent another variant of a holder according to the invention;

figure 30 represents another covering according to the invention;

figure 31 represents for the covering in figure 30 how a panel can be removed from the covering;

figures 32 to 34 represent some more variants of holders;

figure 35 represents how the crosscut far ends of the panels can be interlocked;

figure 36 represents an auxiliary element that can be used for the covering according to the invention;

figure 37 schematically represents how the auxiliary element of figure 36 can be of use;

figure 38 represents a covering according to the invention, realised as a floor covering;

figure 39 represents a holder from the covering of figure 38;

figures 40 to 44 represent some more variants of the invention.

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As represented in figures 1 to 3, the invention concerns a covering 1, in this case a ceiling covering. This covering consists of panels 2 on the one hand, and of fixing means 3 in the shape of holders 4 on the other hand which retain the panels 2 and which are fixed as such against the base, in this case a grid of laths 5.

In the given example, the panels 2 consist of laths which are provided with profiled edges 6 and 7. These laths preferably have a full core and are made of wood or a product on the basis of wood, in particular MDF, HDF or such. The profiled edges 6 and 7 are formed on the laths by means of milling or such. Naturally, these laths will be provided, at least on their visible side, in this case the bottom side 8, with a decorative surface which can be obtained in any way whatsoever.

In the given example, the holders 4 consist of separate elements which can be fixed against the laths 5.

Every holder 4 can co-operate with exactly one panel 2 and consists of a body 9 onto which are provided fixing parts 10-11 and 12-13 which can co-operate with the edges 6-7 of the panel 2 respectively. The panels 2 are hereby surrounded over a part of their thickness by these fixing parts.

The body 9 preferably consists of a plate-shaped part which is provided with openings 14 which make it possible to fix the holder 4 by means of screws, nails or such on the base.

The fixing parts 10-11 and 12-13 together form a fastening system in which the panels 2 can be snapped.

In the example of figures 1 to 3, the fixing parts 10 to 13 to this end consist of hook-shaped lips, whereby in this case the fixing parts 10 and 11 are made such that they are suitable to be laterally bent in a flexible manner. In particular, the fixing parts 10 and 11 each consist of a lip with a hook-shaped part 15 and of a guiding part 16 formed at the free end thereof. The fixing parts 12 and 13 exclusively consist of hook-shaped parts 17 with a rather rigid design.

The panels 2 are provided at their edges 6 and 7 with collars 19 and 20 which can co-operate with the hook-shaped parts 15 and 17 respectively. On the reveal side, in this case the bottom side 8, are formed protruding parts 21 and 22 on the panels 2 which, when mounted, reach past the fixing parts 10-11 and 12-13, as indicated by the distances D1 and D2 in figure 1.

Further, the holders 4 are provided with a stopping part 23, in this case a protruding lip which functions as a spacer, such that this holder 4 can be positioned against a part of a covering which has already been installed before being fixed to the lath 5 or such.

The holder 4 hereby preferably has a design, as represented, which is such that when several such holders 4 are mounted in line one after the other, the spacer of this holder 4 can each time be brought freely up against the edge 6 of the already mounted panel 2. To this end, on each holder 4, opposite to the stopping part 23, is provided a portion in the shape of a recess 24 which leaves the edge 6 of the panel 2 concerned free. Practically, this is realised in the example in that the stopping part 23 is situated between the fixing parts 12 and 13, and the

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fixing parts 10 and 11 are situated at a distance from one another, in between which the recess 24 is formed.

When mounted, the panels 2 lying next to one another overlap, preferably over a short distance D3. This overlap is created as overlapping parts 25-26 are formed on the edges 6 and 7, whereby the part 26 takes place behind the part 25 in mounted position.

10 On the edge 6 there is a recess or free portion 27, as a result of which the panel 2 can be rotated freely along the overlapping part 26 of the panel 2 situated next to it, as represented in figure 3.

15 The assembly of the covering can be easily derived from the figures 1 to 3.

First, a number of holders 4 are fixed at certain distances from one another on a base, in this case a lath structure. Then, a panel 2 as represented in figure 3 is put with the collar 20 in the hook-shaped parts 17, after which the panel 2 is simply pushed up on the other edge 6. Thus, the collar 19 snaps behind the hook-shaped part 15, as a result of which the panel 2 is fixed.

25 In order to mount the next row of panels 2, a new series of holders 4 is fixed to the laths 5, whereby these holders 4 are positioned against the collar 19 with their stopping part 23. Then, as described above, the following panel 2 can be snapped in the holders 4.

An important aspect of the preferred embodiment of the covering 1 according to the invention is that a row of panels 2 can always be freely removed from between the

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other rows, as a panel 2 can be turned down again without any problem thanks to the free portion 27.

Figures 4 and 5 concern a variant in which the holder 4 is provided with fixing parts 12 and 13 which allow for a smooth lateral movement or bending thereof in a flexible manner, while a firm interlocking and bearing capacity is offered in a direction which is perpendicular to the surface of the covering 1. To this end, the fixing parts 12 and 13 consist of elastically bendable lips which are formed of a first part 28 which is bent backward, away from the plane of the body 9, and which is then connected to a second part 29 which is bent forward again, which finally forms a hook-shaped part 17.

According to the invention, the use of such fixing parts 12 and 13 is preferably combined with fixing parts 10 and 11 having a guiding part 16, such that the panel 2 can be simply snapped in by pushing it up. The guiding part 16, which is bevelled, ensures that the panel 2 is hereby laterally moved until it is snapped in.

It should be noted that the fixing parts 10 and 11 in this case must not necessarily be elastically bendable and may consist of rigid elements.

Finally, figure 6 represents how the stopping parts 23 of the holders 4 fit in the recesses 24 of each time the preceding holder 4.

Figure 7 represents a variant whereby the fixing parts 12 and 13 consist of rigid, hook-shaped parts 17, as in the embodiment of figure 1, whereas the fixing parts 10 and 11 are made analogous to the fixing parts 12 and 13 of figure

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Figure 8 represents a variant of the holder 4, whereby the body 9 is provided with strengthening ribs 30 in the shape of bent flanges.

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Figures 9 and 10 represent a variant whereby the holder 4 is provided with clamping means 31 with which it can be fixed on an underlying structure, in particular snapped in it. In the given example, these clamping means 31 consist of elastically bendable elements 32 which can work in conjunction with recesses 33-34 in the laths 5.

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Figure 11 represents a variant whereby the panels 2 mesh directly by means of a tongue and groove joint, formed of a tongue 35 and a groove 36. This offers the advantage that the panels 2 cannot sag in relation to one another. The whole is made such that there is a lateral play S in the assembled condition, which makes it possible to laterally move a panel 2 against the spring force of the fixing parts 12 and 13, such that it can be turned down on the edge 6. When such a panel 2 is mounted again, one proceeds in the opposite sense. This makes it possible for the panel 2 to be removed in this case as well from an already installed covering, and to be put back in place again.

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Figure 12 represents a variant whereby the panels 2 mesh indirectly in and/or behind one another by means of inserted elements, in this case strips 37. These strips may for example be of another colour than the panels 2.

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Figures 13 to 15 represent a variant of an embodiment whereby the panels 2 also fit into one another by means of a tongue 35 and a groove 36, on the edges 7 and 6 respectively.

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A particular characteristic of this embodiment consists in that the coupling part on the edge 6, which in this case is formed by the groove 36, is situated outside the fixing parts 10 and 11 in the assembled condition. In this manner
5 is obtained that the fixing parts 10 and 11 cannot possibly be placed in front of the groove 36.

Another special characteristic of this embodiment is that on the edge 6, on the place P1 where a pressure force has
10 to be exerted during the assembly, the panel 2 is not weakened by the presence of the groove 36.

Another special characteristic consists in that also the coupling part on the other edge 7, in this case the tongue
15 35, is situated outside the fixing parts 12 and 13.

It should be noted that also in the embodiment of figures 13 to 15, there is a play S which makes it possible for a panel 2 to be still removed from an existing covering by
20 successively moving it laterally and by turning it down. Further, as represented in the figures, the tongue 35 and the groove 36, as well as the fixing parts 10-11, are preferably dimensioned such that a panel 2, after it has been put in the fixing parts 12 and 13 on the edge 7, can
25 simply be put in place by pushing it up on the edge 6. The panel 2 hereby slides with the collar 19 along the guiding part 16, as a result of which the panel 2, as represented in figure 14, is moved to the right against the elastic force of the fixing parts 12-13. In the case of an already
30 formed covering, the upper lip 38 consequently moves freely along the far end of the tongue 35. As soon as the collar 19 is situated in front of the hook-shaped part 15, the panel 2 is forced to the left again, as a result of which the panel 2 slides with the groove 36 over the tongue 35.

As represented in figure 2, the panels 2 can possibly also be provided with a tongue 39 and a groove 40 respectively on their crosscut ends.

5 Although only separate holders 4 are represented in the figures, it is clear that, according to a variant, use can also be made of holders in the shape of a profile equipped with several pairs of fixing parts 10-11 and 12-13.

10 Nor is it inconceivable to realise the fixing parts 10 and 11 on the one hand, and the fixing parts 12 and 13 on the other hand as separate, whereby they should be positioned at a correct distance from one another.

15 Instead of the two fixing parts 10 and 11, also one fixing part can be used. The same applies to the fixing parts 12 and 13.

20 The above-mentioned holders 4, which will also be described hereafter, can be made of metal or plastic or any other suitable material whatsoever.

25 An example of an embodiment which is particularly suitable to be made of plastic is represented in the figures 16 to 20. The general construction can be compared to that of the embodiment of figure 8, with as a sole, major difference that the represented holder 4 has only one pair of fixing parts 10-12, instead of the two pairs in figure 8. This makes the construction simpler and requires less
30 plastic.

The holder 4 of figures 16 to 20 is provided with means 41 which guarantee a good grip while said holder 4 is being mounted on a base, even when this holder 4, as represented,
35 is fixed to the base in only one point 42, by means of only

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one nail 43 or such, which is applied through one central opening 14. In the given example, these means 41 consist of two points of support 44-45 which are situated on either side of the above-mentioned point 42 and which are made
5 such that the body 9 is slightly bent when being mounted, as represented in figure 20, so that the holder 4 is tightened against the base on both points of support 44-45. As said points of support 44-45 are situated at a distance from one another, and due to the fact that they are both
10 pressed onto the base, a rotation around the point 42 is excluded.

In the given example, the points of support 44-45 consist of triangular, crosswise directed ribs. However, it is
15 clear that points of support in other shapes are possible.

The holder 4 of figures 16 to 20 is also equipped with positioning means 46 which simplify a quick positioning in relation to the base, which consist of a supporting surface
20 47, with which the holder 4 can be laterally pressed against the above-mentioned lath 5 or such.

The supporting surface 47 is formed by the side of a rib 48 which is provided at right angles on the bottom side of the
25 body 9 and which, together with this bottom side, forms an L-shaped seating which allows for a smooth positioning. During the assembly, the holder 4 can then be pressed in the corner with one hand, which is formed of the preceding, already mounted panel 2 and the lath 5, with the stopping
30 part 23 against the edge of the preceding panel 2 and with the supporting surface 47 against the side of the lath 5. With the other hand, the nail 43 can be shot through the opening 14 by means of a pistol.

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The supporting surface 47 also prevents the holder 4 from rotating in case it should be fixed in a single point 42 as mentioned above.

- 5 The fixing in a single point 42 offers the advantage that the time required for the installation of a ceiling is restricted.

10 It should be noted that all structural characteristics of an embodiment in plastic can be also be integrated in a metal embodiment and vice versa. In particular, this implies that the single embodiment of figures 16 to 20 can also be realised in metal, and the double embodiment of figure 8 also in plastic. Such a double embodiment in
15 plastic is represented for clarity's sake as seen from above in figure 21.

In case the holders 4, as described above, are provided with parts 28 and 29, the part 29 is preferably made such
20 that, in a state of rest, it is pressed against the part 28 with a certain force F, as is indicated in figure 16 by way of example. As a consequence, the position of the lower end of the part 29, and thus of the hook-shaped part 17 is always correct, thus excluding that the distance between
25 the hook-shaped parts 16 and 17 might vary due to differences in the elasticity of the part 29.

Figures 22 and 23 show how the panels 2 and/or the fixing parts, in this case the fixing part 12, can be provided
30 with bevels and/or roundings, 49 and 50 respectively which simplify the turning in and out of a panel 2.

The fixing parts can be provided with hook-shaped parts 16 and 17 which are directed towards one another, as in the
35 above-described embodiments, as well as with hook-shaped

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parts 16 and 17 which are directed away from one another. An example of this second possibility is represented as an illustration in figures 24 to 26. Figure 24 represents the assembled condition, whereas figures 25 and 26 show how a panel 2 can be removed from the covering. In order to mount the panel again, one must proceed in the opposite sense.

Figures 27 and 29 represent yet another variant of the embodiment of figure 18, in which the part 28 is provided with a stopping part 51 which is made in the shape of a local protrusion, so that a very precise end position is formed for the part 29.

Figures 30 and 31 represent a variant, which in a way is the mirrored image of the embodiment according to figure 15. The difference hereby resides in that the whole is made such that the panels 2, when being mounted, are provided with their groove 36 in the most flexible fixing part 12, whereas their tongue 35 is situated near the most rigid fixing part 10.

In relation to the embodiment from figures 13 to 15, the embodiment according to figures 30-31 offers the advantage that the panels 2 can be assembled in a smoother manner, with a smaller risk of wrong manipulations. When a panel 2 is applied according to figure 13, the collar 20 is less visible, and thus it may happen that, when a panel 2 is put with the tongue 35 in the groove 36 of an already mounted panel 2 at a relatively steep gradient, the collar 20 ends up under the hook-shaped part 17, which results in an incorrect assembly. In the embodiment according to figures 30 and 31, this is practically excluded. When a panel 2, as represented in figure 30, is fixed, with its groove 36 shifted over the tongue 35 of the already mounted profile,

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one automatically obtains a positioning whereby the upper lip 38 ends up behind the hook-shaped part 17.

It should be noted that the embodiment of figures 30 and 31 has two aspects which promote the easy hooking of a panel 2, namely that, as mentioned above, the panels 2 are situated with the groove 36 near the most flexible fixing part 12 on the one hand, and that the coupling part of the already mounted panel 2, in this case the tongue 35 of the preceding panel 2, extends at least up to near the fixing part 12 in front of the new panel 2 to be mounted on the other hand, in particular is situated at least partly under this fixing part 12, better still extends past it up to a certain distance, as indicated by D4 in figure 30.

The two above-mentioned aspects do not necessarily need to be combined. Thus, the second aspect could for example also be integrated in the embodiment of figure 15 by making sure that the groove 36, in particular the upper lip 38 which limits the groove 36, extends to underneath the hook-shaped part 17 of the first fixing part of the next panel 2.

As can be seen in figures 30 and 31, a separate seating 52 is preferably formed in the upper lip 38 in front of the hook-shaped part 17, which preferably consists of a recess in the bottom side of the upper lip 38. Moreover, the upper lip 38 preferably extends farther than the lower lip.

The assembly and disassembly of the covering can be easily derived from figures 30 and 31. The assembly is carried out by applying a panel 2 as represented in figure 30 at an angle in the holder 4, whereby it is shifted with the groove 36 over the tongue 35 of the already installed preceding panel 2, and by subsequently rotating the new

panel 2 until it snaps in behind the fixing part 10. The disassembly is carried out as represented in figure 31. The panel 2 to be dismounted is first shifted aside as indicated by the arrow 53, so that the tongue 35 of this panel 2 is released from the groove 36 of the panel 2 lying next to it, after which the panel 2 to be removed is rotated out of the covering as indicated by the arrow 54. To mount it again, one proceeds in the opposite sense.

Figure 32 represents a lighter embodiment of the holder 4 of figure 28. The fixing part 12 hereby has a restricted width, in particular a width which practically coincides with the thickness of the rib 48. As will be further explained, the fixing part 12 must not always be able to absorb a large vertical force, and it is sufficient if this part, together with the far end of the holder 4 concerned, is made relatively light, for example when the panels support each other mutually by means of a tongue and groove joint. The holder 4 must then only be rigid near the other end, in this case near the fixing part 10. Also, the holder must then only be fixed to one far end, with for example only one nail.

It is clear that, according to a variant, the holders 4 can be made as a profile or longitudinal structure with several pairs of fixing parts, whereby each holder 4 can then work in conjunction with several successive panels. An example thereof is represented in figure 33, which represents a multiple holder 4 made in one piece which actually consists of the coupling of three holders according to figure 28. According to a variant which is not represented, use can also be made of separate holders 4, for example as represented in figure 28, which are then fixed at even distances on an endless belt, for example a relatively flexible band made of plastic, metal or any other material

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whatsoever, onto which they are welded, glued, stapled or such. This is advantageous in that such a band with the holders 4 fixed on it can be rolled up and that, during the assembly of a covering, the required lengths can be cut
5 off. The band can be made of such a flexible plastic that it is sufficiently bendable to be rolled up, but still sufficiently rigid to be able to guarantee a fixed distance between the holders 4 fixed upon it when rolled off.

10 Nor is it excluded to make use of one common base, for example in the shape of a profile, onto which several pairs of fixing parts are attached, for example are snapped in. The above-mentioned profile can replace the lath 5.

15 In the latter case, the fixing parts may consist of separate parts which then need to be applied as separate to the common base, as well as of elements containing several fixing parts, for example pairs of fixing parts, and which can be applied as such to a common base. A pair of fixing
20 parts formed as a whole can hereby be made both of fixing parts which are designed to co-operate with the opposite coupling parts, in particular the edges 6-7 of a single panel, and of fixing parts which are designed to work in conjunction with a coupling part, for example the edge 6,
25 of a single panel 2 and with a coupling part, for example the edge 7, of a panel 2 mounted next to it respectively.

An example of the above-described latter possibility is described in figure 34. Hereby, two fixing parts 10 and 12
30 situated next to one another are connected in one piece to form a compact element which can be fixed on a profile 55 or another spacer lug by means of coupling means 56, which in this case consist of fitting parts in the shape of a seating 57 in the profile 55 on the one hand, which is
35 provided with slanting walls 58-59, and a dovetailed part

60 which fits in the seating 57 on the other hand. In order to prevent the whole from shifting out of the seating 57, a snap-in system can possibly be integrated in the seating 57.

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According to another variant, any fixing part can be part of a separate holder, whereby, in order to fix a panel on both edges, two holders must then be provided on the base.

10 According to yet another variant, instead of stopping parts
23 which are designed to work in conjunction with the edge
of an already installed panel 2, the holders can be
provided with stopping parts which can work in conjunction
with a preceding holder, or even with coupling parts which
15 make it possible for successive holders to be coupled to
one another, or at least to be positioned in relation to
one another.

The panels 2 can possibly also be provided at their crosscut ends with coupling parts which provide at least for a locking at right angles to the surface of the covering 1, for example, as mentioned above, by making use of a tongue 39 and a groove 40. According to a variant, not only an interlocking at right angles to the surface of the covering 1 can be provided for, but also in a direction parallel to the surface of the covering 1, for example by making use of coupling parts which snap into one another. An example thereof is represented in figure 35, in which is represented a tongue and groove profile which can be put together by means of rotating as well as by means of shifting and which is analogous to the one represented in figures 22 to 25 of European patent No. 0.843.763, with this sole difference that, for the application of a ceiling covering, it is carried out upside down. Naturally, other connecting systems are not excluded.

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Figure 36 represents an accessory 61 with which the crosscut ends of two panels 2 situated in line can be centred. This accessory 61 consists of a body 62 which can surround the back side, the top side of the panels 2 on the crosscut far ends respectively, and of bent edges 63 and 64 formed on said body 62 which can work in conjunction with the edges of the respective panels 2.

Such an accessory 61 can in principle be provided on each transition between two panels 2, so as to exclude possible mutual shifts between the crosscut far ends, but it is particularly useful in the case of very short panels 2, which are fixed in a holder 4 in only one place. This is illustrated in figure 37, in which is represented the back side of a covering 1, for example a ceiling covering, with panels 2 which are fixed by means of schematically represented holders 4. As the holders 4 are normally situated at regular distances from one another in rows, it is clear that a possible short panel 2A is only held in a holder 4A in a single place, and that this panel 2A could in principle make a slight lateral movement at the far end 65. However, by providing an accessory 61 on the far end 65, in particular by sliding it over the crosscut ends of the adjacent panels 2 and 2A, such a lateral movement is excluded.

Although the invention is in the first place meant for a ceiling or wall covering, it is clear that it is not limited to it. It is for example also possible to apply the covering 1 according to the invention as a floor covering, whereby the whole is then applied upside down. In this case, the above-mentioned holders 4 can be mounted on underlying laths or beams, instead of laths 5 which are fixed against a supporting structure of a wall or ceiling.

One can get a good idea of this by for example turning the figures 1, 2, 4, 7, 11, 12, 13-15, 24-26 and 30-31 over 180°.

5 According to a variant, the holders 4 can also be simply placed on the subfloor, whereby measures must be taken, however, to make sure that a mutual connection is maintained. According to a first possibility, the panels 2, which in this case consist of floor panels, can rest on
10 the holders 4. According to a second possibility, the holders 4 can also be made so thin that they have no effect whatsoever on the actual support of the panels 2, but are only designed to lock the panels 2, i.e. the floor panels, in relation to one another, both horizontally and
15 vertically. In the latter case, the covering is particularly appropriate for the application of floating floors, for example laminate floors, on a flexible and insulating underlayer. The holders 4 are hereby pressed locally in the underlayer, whereas the panels 2 mainly rest
20 on the underlayer over the entire surface.

An example of this latter possibility is represented in figures 38 and 39, whereby strip-shaped holders 4 are laid on an underlayer 66, and whereby the panels 2 are
25 systematically snapped-in on it. The holders 4 hereby have several fixing parts 10-12 which are made analogous to the above-described fixing parts, whereas the panels 2 have profiles 6 and 7 on their edges which are also analogous to the profiles of the above-described panels 2. It is clear
30 that thus is obtained a floor covering which makes it possible to remove a panel from any place whatsoever and to put it back and/or to replace it. It should be noted that the space between the panels 2, which is required to be able to laterally move the panels 2 against the force of
35 the fixing means, can possibly be restricted to a minimum,

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so that also joints which are visible on the surface of the panel 2 are minimal. Possibly, the fixing parts which co-operate with the edge 6 as well as with the edge 7 can be made such that they can be laterally moved in a flexible manner, such that when a panel is removed, several panels lying next to one another can be laterally pushed aside. This makes it possible for the panels 2 to mesh relatively far, for example with their tongue 35 and groove 36, or with other overlapping parts, whereas the mutual clearance between two successive panels 2 can be kept relatively small. When a panel 2 is disassembled, this panel 2 can then be shifted together with several adjacent panels, so that the clearances of the different panels cumulate, and a sufficiently large shift can be realised on the place of the panel 2 to be removed to allow for a disconnection.

Figure 40 represents a variant which makes it clear that the fixing parts 10 and 12 do not necessarily both have to be equipped with a hook-shaped part. In this example, the panel 2 is mainly kept up, on the left side of the figure, by the hook-shaped part 15 which in this case is made relatively rigid on the one hand, and, on the right side of the figure, by means of the tongue and groove joint. The fixing part 12 exerts a pressure force almost exclusively in the horizontal direction and offers practically no vertical resistance. The latter is mainly obtained thanks to the co-operation with the next panel 2.

Figure 40 further makes it clear that the fixing parts of the holder 4, in this case the fixing parts 10 and 12, do not necessarily have to be situated near the edges 6-7 of the panel 2. The fixing part 12 is hereby situated in the middle of the panel 2 and works in conjunction with a part 67 formed to this end on the panel 2.

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Figure 41 shows another variant whereby both fixing parts 10 and 12 are situated in the same half of the panel 2.

Naturally, according to a variant which is not represented,
5 both fixing parts 10 and/or 11 on the one hand, and 12 and/or 13 on the other hand, can be situated at a distance from the actual edges 6-7.

10 It should be noted that in the embodiment of figures 40 and 41, the part 12 preferably offers a slight resistance in the vertical direction, such that this panel 2 remains suspended as such, also as long as there is no meshing with another panel 2 situated next to it.

Sub 15 / Figures 42 to 44 represent three variants whereby the above-mentioned tongue and groove joint is formed by means of an inserted element, in this case a strip 37, whereby there is enough play to disassemble the panels 2 separately, without having to remove the adjacent panels.

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Sub 17 / The strips 37 are hereby preferably fixed tightly in the seatings 68 provided to this end, either during the manufacturing of the panels 2, or during the assembly of the covering. This offers the advantage that the strips 37
25 always remain in place in the cross direction, so that the whole can always be disassembled.

Sub 18 / In the embodiments of figures 42 and 43, such a tight connection can be realised by clamping and/or by gluing the
30 strips 37 in the seatings 68. According to the embodiment of figure 44, use is made of a mechanical interlocking 69, which in this example consists of a protrusion 70 on the panel 2 which meshes in a recess 71 in the strip 37. Naturally, such a mechanical interlocking 69 can also be
35 realised in other ways. Such a mechanical interlocking 69

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offers the advantage that the strips 37 can be shifted in the longitudinal direction and thus can be shifted nicely against one another.

- 5 It is clear that the strips 37 do not necessarily have to have the same length as the panels 2.

10 In order to make sure that the panels 2 are held even better in the holders 4, inclined contact surfaces, if there are any, are preferably made self-locking. This applies among others to the inclined contact surface, in particular the top surface, of the above-mentioned hook-shaped parts 16 and the contact surface of the panel 2 working in conjunction with it.

15 It is clear that the panels 2 can be made of any material whatsoever, and thus for example of extruded plastic or of metal. The panels 2 can be massive as well as hollow, or they may be formed of a bent, thin-walled plate.

20 It should be noted that the different characteristics, in particular the different possibilities for co-operation between a fixing part 10-11 or 12-13 and a panel 2 of the various above-described embodiments, can be mutually
25 combined.

It is clear that the invention is also related to the elements of which said covering 1 is composed, in other words that it is also related to the holders 4 on the one
30 hand and to the profiled panels 2 on the other hand.

Finally, the invention also concerns a method for installing, disassembling the above-mentioned coverings respectively, characterised in that use is made of panels
35 which are provided with a tongue 35 and a groove 36

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respectively on at least two opposite edges which can work in conjunction when assembled, whereby the method mainly consists in that holders 4 are first mounted with fixing parts which can work in conjunction with the above-mentioned edges, in particular holders 4 as described above, and in that the panels 2 are then provided in the holders 4 by first hooking them with one edge and by then rotating them into the plane of the covering to be realised, whereby not only the panels 2 are fixed between the fixing parts, but also the above-mentioned tongue 35 and groove 36 are coupled.

Further, this method is preferably characterised in that one or several of the steps are carried out as described above for handling the covering, and as represented in a number of the drawings.

According to the most preferred embodiment, the proceedings are as represented in figures 30 and 31, whereby the panels 2 slide with their edge provided with the groove 36 over the tongue 35 of the preceding panel 2, whereas the accompanying interlocking part is laterally bent, such that it hooks in the opposite interlocking part.

The disassembly is carried out in the opposite sense.

It is clear that the method according to the invention concerns both the assembly and disassembly of the covering, systematically as of one edge, as well as the assembly and disassembly in the covering of only one or possibly several panels 2 which are situated in the middle of an already existing covering 1.

The present invention is by no means limited to the above-described embodiments represented in the accompanying

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drawings; on the contrary, such a covering and the components thereof can be made in different shapes and dimensions while still remaining within the scope of the invention.

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